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AMSAT NEWS SERVICE
ANS-047

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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ANS-047 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 047.01
From AMSAT HQ KENSINGTON, MD.
DATE February 16, 2020
To All RADIO AMATEURS
BID: $ANS-047.01

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silent. Having not been heard throughout the most recent period of full illumination, it is reasonable to believe the batteries have deteriorated to the point of no longer being able to power the transmitter. Should some future event cause a cell to open, it is possible the satellite may be heard again, but for now it is time to declare end-of-mission.

AO-85 was conceived as the first AMSAT cubesat, and was designed to be a successor to the popular AO-51 microsat. Accepted into the NASA CubeSat Launch Initative in February 2012, AO-85 was launched October 8, 2015. AO-85's success led to further Fox satellites AO-91, AO-92, AO-95, and RadFxSat2 / Fox-1E which will be launched later this year. The Fox-1E transponder was also spun off into a radio system now in orbitonboard HuskySat-1, and soon to be in several other university cubesats.

Development continues on GOLF-TEE and GOLF-1, which will include a legacy V/u linear transponder and a SDR-based multiband uplink and 10 GHz downlink radio system. Your continued support of AMSAT by membership and donations will help us Keep Amateur Radio in Space.

[ANS thanks Drew Glasbrenner, KO4MA, AMSAT Vice President - Operations for the above information]

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University of Washington.

On February 15th, AMSAT Vice President - Engineering Jerry Buxton, N0JY, hosted a Twitch stream to discuss the AMSAT Linear Transponder Module (LTM-1) and HuskySat-1. You can see a replay of the livestream at https://www.twitch.tv/videos/552209241

[ANS thanks Paige Northway of the HuskySat-1 team and Jerry Buxton, N0JY, AMSAT Vice President - Engineering, for the above information]

Update from AMSAT President Clayton Coleman, W5PFG

I am humbled by the greetings and congratulatory messages received over the past ten days since becoming the President of AMSAT. Please join me in expressing gratitude to our immediate past president Joe Spier, K6WAO, for his dedication to AMSAT's mission of Keeping Amateur Radio in Space.

It was a pleasure to speak with many of our members at the Orlando Hamcation last weekend. Attending Hamcation afforded me the opportunity to meet with many of our volunteers and reach out to other organizations in amateur radio such as the ARRL and the Dayton Amateur Radio Association.

My priority, now underway, is to ensure all Directors have equal access to AMSAT resources to perform their duties. AMSAT complies with Section 29-413.05 of the District of Columbia Nonprofit Corporation Act of 2010. Most of the information Directors use to perform their duties are already publicly available on the Internet on our website, published in the AMSAT News Service (ANS), and often in print as part of The AMSAT Journal. These resources are not password protected and can be viewed by members and non-members alike.

Once I've had an opportunity to speak individually with the Directors, I will convene a Board of Directors teleconference to address outstanding business. At any time, three Directors may call on the President to schedule a Board of Directors meeting, per our bylaws Article II, Section 5, Paragraph A.

73,
Clayton
W5PFG
AMSAT President

[ANS thanks Clayton Coleman, W5PFG, AMSAT President, for the above information]

Free Digital Copy of "Getting Started with Amateur Satellites" Available for New or Renewing Members

While HuskySat-1 completes it's scientific mission, check out the best resource for learning how to work through linear transponder satellites (and other types of amateur satellites). For a limited time, AMSAT is making the "Getting Started With Amateur Satellites" book available as a download with any paid new or renewal membership purchased via the AMSAT Store. This offer is only available with purchases completed online, and for only a limited time. A perennial favorite, Getting Started is updated every year with the latest amateur satellite information, and is the premier primer of satellite operation. The book is presented in PDF format, in full color, and

covers all aspects of making your first contacts on a ham radio satellite.

Please take advantage of this offer today by visiting the AMSAT store at https://www.amsat.org/shop/ and selecting any membership option. While there, check out AMSAT's other items, including the M2 LEOpack antenna system, Arrow antennas, AMSAT shirts, and other swag. Be sure to view your cart before going to checkout. If you add a membership and then go directly to checkout, you'll never see an option to add your free gift.

If you have trouble selecting your free gift, please see this YouTube video to see the steps necessary. https://youtu.be/oRqk5Am-UzE

[ANS thanks the AMSAT Office for the above information]

Apogee View - January/February 2020

Happy New Year! 2020 promises to be an exciting year filled with new satellites to work and significant progress towards our next generation of satellites. By the time you read this, HuskySat-1 should be in orbit and completing its science mission before being turned over to AMSAT for amateur radio use. I want to congratulate all those involved with this project both at the University of Washington and on AMSAT’s Engineering and Operations teams who worked to make this mutually beneficial partnership happen. More details about HuskySat-1 and our partnership with the Husky Satellite Lab at the University of Washington can be found elsewhere in the January/February 2020 issue of The AMSAT Journal.

While we look forward to the completion of HuskySat-1's primary mission, we also await the launch of the final Fox-1 satellite, RadFxSat-2 / Fox-1E, which is currently scheduled to launch no earlier than the first quarter of this year on the ELaNa XX mission. The ELaNa XX mission will fly on the second flight of Virgin Orbit's LauncherOne vehicle.

As the Fox project wraps up its series of five 1U CubeSats, progress continues on GOLF, the next generation of AMSAT satellites. A group of GOLF-TEE (Greater Orbit Larger Footprint – Technology Evaluation Environment) satellite prototype boards transmitted telemetry for the first time on Tuesday, January 14th. During the test, the boards were laid out on a bench as a "flat-sat" with interconnecting wires, bench power supplies, and a dummy load on the transmitter. The interconnected boards included:

• An early RT-IHU (Radiation Tolerant Internal Housekeeping Unit - i.e., computer) prototype,
• A CIU (Control Interface Unit) prototype, and
• A set of spare boards from HuskySat-1 that act as prototypes for the LIHU (Legacy IHU) and legacy VHF/UHF RF components.

Now that the team has reached this point, AMSAT Engineering has RF to use as a basis for developing a GOLF-TEE decoder for FoxTelem, our ground telemetry receiver software. Thousands of hours of work by many AMSAT volunteers have gone into the hardware and software that got us this far, with much work yet to be done before the assembly of flight units. The GOLF-TEE satellite is designed as a Low Earth Orbit (LEO) testbed for technologies necessary for a successful CubeSat mission to a wide variety of orbits, including MEO (Medium Earth Orbit) and HEO (High Earth Orbit).

The work on GOLF is intended for our CubeSat missions to higher orbits. However, much as the Fox-1E linear transponder was adapted as a payload for HuskySat-1, components developed for GOLF, such as the RT-IHU and the microwave SDR transponder, can be adapted to serve as the basis for a hosted payload on a commercial or government satellite in geostationary orbit or perhaps an educational CubeSat destined for MEO or GTO. Should an opportunity arise, the work being done on GOLF means that we will be ready to build such a hosted payload.

While we continue our work on these satellites, we face the prospect of regulatory roadblocks. Last year, we submitted comments on the Federal Communication Commission's Notice of Proposed Rulemaking regarding the mitigation of orbital debris. The proposed rules as worded would severely limit the type of missions AMSAT could pursue. While the Commission has not yet issued final rules, we are hopeful that the near-unanimous opposition of commenters to the more harmful aspects of the rules, such as the requirement for satellite operators to indemnify the United States Government for any potential claims regarding their satellites, will limit the negative impact.

Another serious concern is our access to spectrum. While international threats that arose in the months before the 2019 World Radiocommunication Conference to the 144 MHz – 146 MHz and 1260 MHz – 1270 MHz amateur satellite service bands have subsided for the time being, other threats appear on the horizon. This past December, the FCC issued a Notice of Proposed Rulemaking that would delete the amateur allocation at 3.3 GHz – 3.5 GHz, including the amateur satellite service allocation at 3.4 GHz – 3.41 GHz. While that band has not yet been used for any amateur satellites as it is not available in ITU Region 3 (Asia & Oceania), it is still a potentially useful resource for a future amateur geostationary payload over the Americas.

Additionally, we know that many AMSAT members also use this band for other purposes, such as mesh networking, contesting, and EME communications. Access to microwave spectrum is crucial for many of our planned activities, including GOLF and amateur radio on the Lunar Gateway, and we must vigorously defend our spectrum allocations. AMSAT is currently drafting comments opposing this proposed rule, and, working alongside the ARRL, we continue to monitor potential legislative and regulatory actions that could limit or even preclude some of our current and planned activities.

On a final note, I wanted to let the membership know that AMSAT's servers will be migrating to a new operating system and a new hosting service later this year. This is necessary as the operating system currently running AMSAT's servers will reach its end of life in November. While AMSAT's capable IT team led by Joe Fitzgerald, KM1P, will do their best to minimize any disruptions to AMSAT services, this type of transition can often result in unforeseen problems. Continue to monitor the AMSAT-BB and AMSAT's Twitter and Facebook accounts for any updates.

[ANS thanks Paul Stoetzer, N8HM, AMSAT Executive Vice President, for the above information]

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5 Tips on Etiquette and Good Manners on the FM Ham Radio Satellites

The DX Engineering blog On All Bands recently published an article entitled "5 Tips on Etiquette and Good Manners on the FM Ham Radio Satellites" by Sean Kutzko, KX9X.

The article can be found at:
https://www.onallbands.com/ham-radio-satellite-operating-etiquette/

[ANS thanks Sean Kutzko, KX9X, and DX Engineering for the above information]

Changes to AMSAT-NA TLE Distribution for February 13, 2020

The following Amateur Radio satellite's name and NORAD CAT ID have been changed:
1. HuskySat 1 satellite name is now HuskySat-1.
2. Based on changes in Space-Track TLE data, HuskySat-1's new NORAD CAT ID is now object 45119.

(Thanks to Nico Janssen, PA0DLO, for satellite identification.)

[ANS thanks Ray Hoad, WA5QGD, AMSAT Orbital Elements Manager for the above information]

Upcoming ARISS Contacts

Maple Dale Elementary School, Cincinnati, OH, direct via K8SCH
The ISS callsign is presently scheduled to be NA1SS
The scheduled astronaut is Drew Morgan KI5AAA
Contact is go for: Thu 2020-02-20 18:20:28 UTC 48 deg

The ARISS webpage is at https://www.ariss.org/
Note that there are links to other ARISS websites from this site.

The main page for Applying to Host a Scheduled Contact may be found at
https://www.ariss.org/apply-to-host-an-ariss-contact.html

Note, all times are approximate. It is recommended that you do your own orbital prediction or start listening about 10 minutes before the listed time.

All dates and times listed follow International Standard ISO 8601 and time format YYYY-MM-DD HH:MM:SS

[ANS thanks Charlie Sulfana, AJ9N, ARISS Operations, for the above information]

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Want to see AMSAT in action or learn more about amateur radio in space?

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

Current schedule:

+ March 6, 2020, Irving Hamfest, Irving, TX
+ March 14-15, 2020, Science City on University of Arizona, Tuscon, AZ
+ March 21, 2020, Midwinter Madness Hamfest, Buffalo, MN
+ March 21, 2020, Scottsdale Amateur Radio Club Hamfest, Scottsdale, AZ
+ March 28, 2020, Tucson Spring Hamfest, Tucson, AZ
+ March 29, 2020, Vienna Wireless Winterfest, Annandale, VA
+ May 2, 2020, Cochise Amateur Radio Association Hamfest, Sierra Vista, AZ
+ May 8-9, 2020 Prescott Hamfest, Prescott, AZ
+ May 15-17, Hamvention, Xenia, OH
+ June 12-13, 2020, Ham-Con, Plano, TX

A copy of the AMSAT hamfest brochure is available for download at https://tinyurl.com/ANS-026-Hamfest

This color brochure is designed to be printed double-sided and folded into a tri-fold handout.

To include your upcoming AMSAT presentation and/or demonstration, please send an email to ambassadors (at) amsat (dot) org.

[ANS thanks Robert Bankston, KE4AL, AMSAT Vice President - User Services, for the above information]

Upcoming Satellite Operations

Satellite Shorts
    Feb 13-16 DM22 AD7DB and N7JY FM
    Feb 15 CN78 ADODX FM and Linear (Twitter @ad0dx)
    Mar 14-15 DN26/36 KC7JPC Linears (and possibly FM)

#SnowBirdRove (EL79) – February 1-29, 2020
    Joe, KE9AJ, will cross the border into Florida, seeking climatical asylum in EL79 for the entire month of February. Since he will be there for an extended period, with both FM and linear gear, keep an eye on Joe’s Twitter feed for specific pass announcements: https://twitter.com/KE9AJ

St. Barthelemy Island (FK87) February 15-22, 2020
    Operators Pat/N2IEN, Ray/W2RE, Rockwell/WW1X, and Lee/WW2DX will be signing FJ/homecalls from St. Barthelemy (NA-146) between Feb. 15 and 22. QRV holiday-style on 160 to 6m and via satellite on CW, SSB, and digital modes. QSL cards for all calls via NR6M.

Vidalia, LA (EM41) February 28 – March 1, 2020
    Brian, KG5GJT, will will be operating from the bank of the Mississippi river in Vidalia, La. (EM41), where Jim Bowie was seriously wounded in the Sandbar Fight on September 19, 1827. This will be vacation style, so keep an eye on Brian’s Twitter feed for updates: https://twitter.com/KG5GJT

Big Bend National Park (DL88) March 16-17, 2020

Ron AD0DX, Doug N6UA, and Josh W3ARD will operate from Big Bend National Park to put grid DL88 on the air. Details will be added here, as they come available, but you are more than welcome to keep an eye on their individual Twitter feeds: https://twitter.com/ad0dx, https://twitter.com/dtabor, and https://twitter.com/W3ARDstroke5

[ANS thanks Robert Bankston, KE4AL, AMSAT Vice President - User Services, for the above information]

Operators Alex/VE1RUS and Pierre/VE3TKB will once again be active as VY0ERC from the Eureka Weather station between now and March 28th. This station is operated by the Eureka Amateur Radio Club [probably the most northerly located amateur radio club in the world] from Eureka, Nunavut, Canada. The suggested bands are 40 and 20 meters possibly 80m), as well as FM satellites (from ER60, EQ79) using SSB, the Digital modes (FT8 and RTTY) and very slow CW. Activity will be limited to their spare time. QSL via M0OXO, OQRS or direct. For updates, see: https://twitter.com/vy0erc

[ANS thanks The Ohio/Penn Dx Bulletin for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and remember to help Keep Amateur Radio In Space,

This week's ANS Editor,

Paul Stoetzer, N8HM
n8hm at amsat dot org